



AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

Please amend claim 16 and cancel claims 8, 11, 17, 24 and 27-46 without prejudice.

Please add new claims 47-70.

1. (Original) A process for the casting of metals, comprising the steps of:
providing a mold;
delivering a molten metal into the mold;
solidifying the molten metal; and,
removing at least a portion of the mold, wherein the step of removing the mold begins before the step of solidifying the molten metal has been completed.
2. (Original) The process of claim 1, wherein the steps of removing at least a portion of the mold and solidifying the molten metal are performed approximately simultaneously.
3. (Original) The process of claim 1, further comprising the step of continuing to deliver molten metal to the mold during the step of removing at least a portion of the mold.
4. (Original) The process claim 1, wherein the step of removing at least a portion of the mold includes the step of decomposing the mold.
5. (Original) The process of claim 1, wherein the step of delivering molten metal into the mold is accomplished by a gravity feed of the molten metal.
6. (Original) The process of claim 1, wherein the step of removing at least a portion of the mold includes the step of spraying the mold with a solvent.

7. (Currently Amended) The process of claim 6, wherein the step of spraying the mold with a solvent includes the step of adjusting at least one of a rate of spray of the solvent and a pattern of spray of the solvent.

8. (Cancelled)

9. (Original) The process of claim 6, wherein the step of spraying the mold with a solvent includes the step of directing at least two streams of solvent onto the mold.

10. (Currently Amended) The process of claim 9, wherein a first stream of solvent is directed onto the mold at at least one of a different time and a different location than a second stream of solvent.

11. (Cancelled)

12. (Original) The process of claim 6, wherein the solvent includes at least one of a liquid, a gas and a grit material.

13. (Original) The process of claim 6, wherein the solvent is delivered at a rate of from about 0.5 to about 50.0 liters per second.

14. (Original) The process of claim 6, wherein the solvent is delivered at a pressure of from about 0.03 to about 70.00 bar.

15. (Original) The process of claim 6, wherein the mold includes at least one constituent, and the process further comprises the additional step of reclaiming at least one of the at least one constituent and the solvent.

16. (Currently Amended) A process for reducing the cooling time of a metal that has been cast, comprising the steps of:

providing a mold;
supplying molten metal to the mold;
spraying the mold with a solvent;
decomposing at least a portion of the mold with the solvent; and,
cooling the molten metal with the solvent, wherein the step of spraying commences before the molten metal has completely solidified.

17. (Cancelled)

18. (Currently Amended) The process of claim ~~47~~ 16, wherein the step of spraying commences shortly after the molten metal has been poured into the mold.

19. (Original) The process of claim 16 further comprising the step of supplying additional molten metal to the mold during said step of spraying the mold with the solvent.

20. (Original) The process of claim 16, wherein the step of spraying the mold with a solvent includes delivering the solvent at a rate of from about 0.5 to about 50.0 liters per second.

21. (Original) The process of claim 16, wherein the step of spraying the mold with a solvent includes delivering the solvent at a pressure of from about 0.03 to about 70.00 bar.

22. (Original) The process of claim 16, wherein the mold includes a binder and an aggregate, and further comprising the additional step of reclaiming at least one of the binder, aggregate and solvent.

23. (Currently Amended) The process of claim 16, wherein the step of spraying the mold with a solvent includes the step of adjusting at least one of a rate of spray of the solvent and a pattern of the spray of the solvent.

24. (Cancelled)

25. (Original) The process of claim 16, wherein the step of spraying the mold with a solvent includes the step of directing at least two streams of solvent onto the mold.

26. (Currently Amended) The process of claim 25, wherein the at least two streams are spaced from each other so as to contact separate areas of the mold.

27 - 46. (Cancelled)

47. (New) A process for casting an aluminum metal, comprising:
providing a mold;
delivering a molten aluminum metal into the mold; and,
decomposing at least a portion of the mold at an elevated temperature with a solvent including water, wherein the step of decomposing at least a portion of the mold begins before the molten aluminum metal has completely solidified into a casting.

48. (New) The process of claim 47, further comprising continuing to deliver molten metal to the mold during the step of decomposing at least a portion of the mold.

49. (New) The process claim 47, wherein the step of decomposing at least a portion of the mold includes percolating the solvent through the mold.

50. (New) The process of claim 47, wherein the step of decomposing at least a portion of the mold includes spraying the mold with the solvent.

51. (New) The process of claim 50, wherein the step of spraying the mold with the solvent includes adjusting a rate of spray of the solvent.

52. (New) The process of claim 50, wherein the step of spraying the mold with the solvent includes adjusting at least one of a pattern of spray of the solvent and a rate of spray of the solvent.

53. (New) The process of claim 50, wherein the step of spraying the mold with the solvent includes directing at least two streams of solvent onto the mold.

54. (New) A process for reducing the cooling time of a metal that has been cast, comprising:

providing a mold;

supplying a molten metal including aluminum to the mold to form a cast metal;

percolating a solvent including water through the mold to the cast metal;

forming a relatively solid skin on the cast metal while an interior thereof remains molten; and,

subsequently contacting the relatively solid skin on the cast metal with the solvent.

55. (New) The process of claim 54 further comprising cooling the cast metal with the solvent.

56. (New) The process of claim 54, further comprising continuing to contact the cast metal with the solvent until the cast metal has completely solidified.

57. (New) The process of claim 56, wherein the step of contacting commences shortly after the step of forming a relatively solid skin on the cast metal.

58. (New) The process of claim 54 further comprising the step of supplying additional molten metal to the mold during said step of contacting the relatively solid skin with the solvent.

59. (New) The process of claim 54, wherein the step of contacting the relatively solid skin with the solvent includes the step of adjusting at least one of a rate of contact of the solvent and a pattern of contact of the solvent.

60. (New) The process of claim 54, wherein the step of contacting the relatively solid skin with the solvent includes directing at least two streams of solvent onto the relatively solid skin.

61. (New) The process of claim 60, wherein the at least two streams are spaced from each other so as to contact separate areas of the relatively solid skin.

62. (New) A method of removing a mold from a casting which is being formed therein, comprising:

directing a fluid stream at the mold when the casting is partially solidified; and
dislodging at least a portion of the mold from the casting.

63. (New) The method of claim 62 further comprising continuing to deliver molten metal to the mold during the step of dislodging at least a portion of the mold.

64. (New) The method of claim 62 wherein the step of directing a fluid stream comprises percolating a solvent including water through the mold.

65. (New) The method of claim 64 further comprising subsequently spraying the solvent at the casting.

66. (New) The method of claim 62 wherein the step of directing a fluid stream comprises spraying the mold with a solvent including water.

67. (New) The method of claim 66 wherein the step of spraying the mold with the solvent includes adjusting at least one of a rate of spray of the solvent and a pattern of spray of the solvent.

68. (New) The process of claim 66, wherein the step of spraying the mold with a solvent includes directing at least two streams of solvent onto the mold.

69. (New) The process of claim 68, wherein the at least two streams are spaced from each other so as to contact separate areas of the mold.

70. (New) The process of claim 62 further comprising reclaiming at least one constituent of the mold.